

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville

2960 Foster Creighton Drive

Nashville, TN 37204

Tel: (615)726-0177

TestAmerica Job ID: 490-36654-1

Client Project/Site: 94137559 / [REDACTED] Property

For:

Terracon Consulting Eng & Scientists

8901 Carpenter Freeway

Suite 100

Dallas, Texas 75247

Attn: Mr. David Majesko

*Jennifer Gambill*

Authorized for release by:

10/16/2013 10:07:52 AM

Jennifer Gambill, Project Manager I

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Sample Summary . . . . .	3
Case Narrative . . . . .	4
Definitions . . . . .	5
Client Sample Results . . . . .	6
QC Sample Results . . . . .	7
QC Association . . . . .	9
Chronicle . . . . .	10
Method Summary . . . . .	11
Certification Summary . . . . .	12
Chain of Custody . . . . .	13
Receipt Checklists . . . . .	15

## Sample Summary

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / Dawson Property

TestAmerica Job ID: 490-36654-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-36654-1	WWW-26[REDACTED]-092613	Water	09/26/13 12:07	10/01/13 08:20

1

2

3

4

5

6

7

8

9

10

11

12

13

## Case Narrative

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / [REDACTED] Property

TestAmerica Job ID: 490-36654-1

**Job ID: 490-36654-1**

**Laboratory: TestAmerica Nashville**

**Narrative**

### CASE NARRATIVE

**Client: Terracon Consulting Eng & Scientists**

**Project: 94137559 / [REDACTED] Property**

**Report Number: 490-36654-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Nashville attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

#### RECEIPT

The samples were received on 10/01/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.1 C.

#### DISSOLVED GASES

Sample WWW-26-[REDACTED]-092613 (490-36654-1) was analyzed for dissolved gases in accordance with RSK\_175. The samples were analyzed on 10/10/2013.

Methane failed the recovery criteria low for the MSD of sample WWW-26-[REDACTED]-092613MSD (490-36654-1) in batch 490-113623.

Sample WWW-26-[REDACTED]-092613 (490-36654-1) required a 5x dilution for Ethane and a 20x dilution for Methane prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the dissolved gases analysis.

All other quality control parameters were within the acceptance limits.

## Definitions/Glossary

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / [REDACTED] Property

TestAmerica Job ID: 490-36654-1

### Qualifiers

#### GC VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / [REDACTED] Property

TestAmerica Job ID: 490-36654-1

**Client Sample ID: WWW-26-[REDACTED]-092613**

**Lab Sample ID: 490-36654-1**

**Date Collected: 09/26/13 12:07**

**Matrix: Water**

**Date Received: 10/01/13 08:20**

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetylene	ND		0.00500	0.00340	mg/L			10/10/13 16:02	1
<b>Butane</b>	<b>0.0480</b>		0.00500	0.00250	mg/L			10/10/13 16:02	1
<b>Ethane</b>	<b>1.45</b>		0.0250	0.0125	mg/L			10/10/13 16:06	5
Ethene	ND		0.00500	0.00250	mg/L			10/10/13 16:02	1
<b>Methane</b>	<b>8.08</b>		0.100	0.0500	mg/L			10/10/13 16:10	20
<b>Propane</b>	<b>0.579</b>		0.00500	0.00250	mg/L			10/10/13 16:02	1

# QC Sample Results

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / [REDACTED] Property

TestAmerica Job ID: 490-36654-1

## Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 490-113623/5

Matrix: Water

Analysis Batch: 113623

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetylene	ND		0.00500	0.00340	mg/L			10/10/13 15:56	1
Butane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Ethane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Ethene	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Methane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Propane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1

Lab Sample ID: LCS 490-113623/3

Matrix: Water

Analysis Batch: 113623

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetylene	0.450	0.4149		mg/L		92	80 - 120
Butane	0.992	0.9984		mg/L		101	80 - 120
Ethane	0.513	0.4445		mg/L		87	80 - 120
Ethene	0.479	0.3958		mg/L		83	80 - 120
Methane	0.273	0.2534		mg/L		93	80 - 120
Propane	0.763	0.7409		mg/L		97	80 - 120

Lab Sample ID: LCSD 490-113623/4

Matrix: Water

Analysis Batch: 113623

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetylene	0.450	0.3933		mg/L		87	80 - 120	5	33
Butane	0.992	0.9937		mg/L		100	80 - 120	0	33
Ethane	0.513	0.4336		mg/L		85	80 - 120	2	30
Ethene	0.479	0.3941		mg/L		82	80 - 120	0	29
Methane	0.273	0.2488		mg/L		91	80 - 120	2	33
Propane	0.763	0.7326		mg/L		96	80 - 120	1	33

Lab Sample ID: 490-36654-1 MS

Matrix: Water

Analysis Batch: 113623

Client Sample ID: WWW-26-[REDACTED]-092613

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetylene	ND		0.450	0.3748		mg/L		83	70 - 130
Butane	0.0480		0.992	0.9942		mg/L		95	70 - 130
Ethane	1.46		0.513	1.876	E	mg/L		81	71 - 120
Ethene	ND		0.479	0.3704		mg/L		77	71 - 120
Methane	3.59		0.273	3.752	E 4	mg/L		58	46 - 142
Propane	0.579		0.763	1.264		mg/L		90	70 - 130

Lab Sample ID: 490-36654-1 MSD

Matrix: Water

Analysis Batch: 113623

Client Sample ID: WWW-26-[REDACTED]-092613

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetylene	ND		0.450	0.3541		mg/L		79	70 - 130	6	30

TestAmerica Nashville

# QC Sample Results

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / [REDACTED] Property

TestAmerica Job ID: 490-36654-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 490-36654-1 MSD

Matrix: Water

Analysis Batch: 113623

Client Sample ID: WWW-26-[REDACTED]-092613

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Butane	0.0480		0.992	0.9929		mg/L		95	70 - 130	0	30
Ethane	1.46		0.513	1.880	E	mg/L		81	71 - 120	0	30
Ethene	ND		0.479	0.3697		mg/L		77	71 - 120	0	30
Methane	3.59		0.273	3.603	E 4	mg/L		3	46 - 142	4	30
Propane	0.579		0.763	1.271		mg/L		91	70 - 130	1	30



## QC Association Summary

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / Dawson Property

TestAmerica Job ID: 490-36654-1

### GC VOA

#### Analysis Batch: 113623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-36654-1	WWW-26-092613	Total/NA	Water	RSK-175	
490-36654-1	WWW-26-092613	Total/NA	Water	RSK-175	
490-36654-1	WWW-26-092613	Total/NA	Water	RSK-175	
490-36654-1 MS	WWW-26-092613	Total/NA	Water	RSK-175	
490-36654-1 MSD	WWW-26-092613	Total/NA	Water	RSK-175	
LCS 490-113623/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 490-113623/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 490-113623/5	Method Blank	Total/NA	Water	RSK-175	

## Lab Chronicle

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / [REDACTED] Property

TestAmerica Job ID: 490-36654-1

**Client Sample ID: WWW-26[REDACTED]-092613**

**Lab Sample ID: 490-36654-1**

**Date Collected: 09/26/13 12:07**

**Matrix: Water**

**Date Received: 10/01/13 08:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	113623	10/10/13 16:02	MGH	TAL NSH
Total/NA	Analysis	RSK-175		5	113623	10/10/13 16:06	MGH	TAL NSH
Total/NA	Analysis	RSK-175		20	113623	10/10/13 16:10	MGH	TAL NSH

### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## Method Summary

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / [REDACTED] Property

TestAmerica Job ID: 490-36654-1

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL NSH

### Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## Certification Summary

Client: Terracon Consulting Eng & Scientists  
Project/Site: 94137559 / [REDACTED] Property

TestAmerica Job ID: 490-36654-1

### Laboratory: TestAmerica Nashville

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAP	6	T104704077-09-TX	08-31-14

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Acetylene

## COOLER RECEIPT FORM



Cooler Received/Opened On 10/1/2013 @ 0820

1. Tracking # 2731 (last 4 digits, FedEx)

Courier: Fedex IR Gun ID 18290455

2. Temperature of rep. sample or temp blank when opened: 3.1 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) ELA

7. Were custody seals on containers: YES NO and intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # 1

I certify that I unloaded the cooler and answered questions 7-14 (initial) EL

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) EL

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) EL

I certify that I attached a label with the unique LIMS number to each container (initial) EL

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#

# Terracon

Consulting Engineers &amp; Scientists

Office Location DAWPSProject Manager MAX MASLOWSampler's Name MAX MASLOW

Laboratory: TEST AMERICA  
 Address: NASHVILLE TN  
 Contact: JENNIFER GIBBS  
 Phone: 615 755 7559  
 PO/ISO #: 94137559

Sampler's Signature [Signature]Proj. No. 94137559Project Name PROPERTYPARAKE COUNTY, TX

No/Type of Containers

Matrix	Date	Time	Com p	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1L	250 ml	P/O
W	9/26/13	1207	X	WVW-26-092613	—	—	6			

Lab Sample ID (Lab Use Only) 01

ANALYSIS REQUESTED

RISK-175 (METHANE, ETHANE, ETHENE, PROPANE, n-BUTANE, ACETYLENE)

Loc: 490  
36654Lab use only  
Due Date:

Temp. of coolers when received (C°):

1	2	3	4	5
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Page 1 of 1

Turn around time ☒ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush

Relinquished by (Signature) [Signature]Date: 9/26/13 Time: 1325Received by (Signature) [Signature]

NOTES:

Relinquished by (Signature) [Signature]Date: 9/26/13 Time: 1700Received by (Signature) [Signature]Relinquished by (Signature) [Signature]Date: 9/26/13 Time: 0820Received by (Signature) [Signature]Relinquished by (Signature) [Signature]Date: 9/26/13 Time: 0820Received by (Signature) [Signature]Matrix WW - Wastewater  
Container VOA - 40 ml vialW - Water  
A/G - Amber / Or Glass 1 LiterS - Soil  
SD - Solid  
L - Liquid  
A - Air BagC - Charcoal tube  
P/O - Plastic or otherSL - sludge  
O - Oil

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24 Smith Rd., # 261  
Midland, Texas 79705  
(432) 684-9600 Fax (432) 684-9608

## Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 490-36654-1

Login Number: 36654

List Source: TestAmerica Nashville

List Number: 1

Creator: Gambill, Shane

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	